

"Recovering from *Challenger*"

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I appreciate this opportunity to spend a little time with you to reflect on some of the lessons of the *Challenger* accident--not just for NASA, but for good government in general.¹

When most of us experience a traumatizing event, the first "lesson" we think we learn is: "let's not let that happen again." As we pick up the pieces and try to return our lives and work to normal, our mental faculties concentrate on prevention: how can we prevent another accident from happening? This response, you may say, is perfectly natural. I would reply, if this is our only response, it will leave us less well prepared for the next traumatizing event.

¹ I am indebted to W. Henry Lambright of Syracuse University for some of the insights discussed in this paper. Dr. Lambright is currently writing a career biography of James Webb, NASA Administrator from 1961 to 1968.

Philosophers, poets, and pundits can fill volumes with truisms about the nature of life. One of those truisms is especially true: life changes, and living things must change with it. Life is full of accidents. Good accidents we call novelties--the surprises that stimulate our energies and creativity. Organizations, like all individuals, must constantly adapt creatively to change, or they will ultimately cease to function--not only cease to function creatively, but eventually cease to function at all (what physicists call inertia, medical people call catatonia, and sailors fear when the main mast breaks). That is why, as we emerge from a major crisis, we should resist the temptation simply to try to turn back the clock, or to restore the status of things as they were.

Now, I'm not going to suggest that we be reckless and take no steps to prevent unnecessary accidents from happening. What I am suggesting is that we do not become preoccupied with preventing any accident from happening. Creative living, for organizations as well as for individuals, is risk taking. Creative organizations--and this is especially true for organizations with R&D missions--must have at the core of their culture the acceptance, not avoidance, of risk. Not only will accidents happen, they must happen.

Innovative engineering requires successive failures to make progress. This is no less true of innovative management, which needs an occasional failure to test the merits of conventional wisdom. When I interviewed several candidates for a managerial position not long ago, one question I asked each of them was, "What was your biggest mistake--your biggest failure--and what did you learn from it?" I wanted to know how creative a manager each person could be.

Let's talk about the *Challenger* accident of January 28, 1986. Much of the controversy about the accident itself was over whether it was a necessary accident, a predictable accident. Unfortunately, too much of the energy that fueled that controversy came from the desire to assign, or to avoid, blame. But the real challenge for NASA as an engineering organization, at that point in time, was to acquire whatever new technical insights there were to be gained from the event itself. Any action taken that might impede the acquisition of those insights would be, from a good management perspective, a wrong action.

NASA did conduct its own internal technical investigation of the accident, and the results of that investigation became the basis for the agency's return-to-flight strategy developed between January and March of 1986. This was a highly creative process, but it was somewhat obscured by two parallel happenings. First, on the advice of the White House staff, the President appointed an investigating commission headed by a former U.S. prosecuting attorney. The task of understanding the accident became confused with the excitement of assigning blame--two very different things. Second, the question of the nature of the accident itself--whether it was a "necessary" price for taking legitimate risks, or whether it was an unnecessary accident caused by foolishness, ineptitude, or indolence--was confused by the fact that NASA had not made it clear to the public (and some would argue, not clear to itself) whether the Shuttle was a research item--another experimental aircraft--or an operational item like your city bus. Consensus within the organization and appreciation by the public of the nature of the beast was absolutely essential to adequate preparation for an accident. That consensus did not exist, and as a consequence, neither the public nor the media was adequately prepared for the accident.

Every major accident sets in motion a process. The process is somewhat different for an individual, a private organization, or a government agency. We can understand this process, as it applies to a government agency, a little better if we compare the way it played out after the Apollo-Saturn 204 launch pad fire of January 1967 with the way it played out after the *Challenger* accident. In both cases, the first phase in the process was **trauma** and the absolute need to keep cool heads. In the first moments after an accident, critical decisions may have to be made. The panic which grips all of us at such times is not likely to produce wise or farsighted decisions. If we have not thought out ahead of time what we will do in crisis situations, we are not likely to act or speak carefully when they occur.

The second phase, **reaction** (not to be confused with recovery), was and is the toughest test of any organization's management. A Federal agency now fights on three fronts: the technical front (especially if it is an R&D agency), the organizational front, and the political front.

On the technical front, the normal hierarchical structure of managerial authority needs to be overturned, temporarily. Top executives need to defer to their technical people, normally the cogs to their own big wheels. This NASA did immediately after the Apollo-Saturn 204 fire when Administrator James Webb seized the initiative and successfully appealed to President Johnson to allow NASA to take the investigatory lead with its own internal inquiry. That investigation was primarily technical, and it was sufficiently rigorous and critical that it was credible. In the case of the *Challenger* accident, NASA conducted its own internal technical investigation, but that investigation took a back seat to the work of the Rogers Commission. The White House had taken the initiative in appointing the Commission, and it was able to do so because NASA's own top management was in disarray. The agency had been without a permanent Administrator for almost 4 months, and NASA was suffering from high management turnover generally, which added to a lack of direction.

The post-Apollo-Saturn 204 investigation resulted largely in technical outcomes. There was some grumbling on the Hill about NASA's

management of its contractors, and the agency responded to those criticisms. Generally, however, the agency's technical credibility was not sacrificed. Because of the circumstances of the post-*Challenger* Rogers Commission investigation, however, questions of blame became confused with technical questions. NASA and its principal contractor, Morton Thiokol, reacted independently of each other, again undermining confidence in the agency. And the media, of course, had a field day.

In addition to the technical battlefield, the agency has to fight on an organizational front. Played out against the background of trauma and the challenge to the agency's technical credibility and self-confidence, this phase, too, tests senior management. The temptation is enormous to short-cut the task of restoring credibility and self-confidence by making sweeping organizational and management changes. But the penalty for doing so is severe. Organizational continuity is critical to surviving a crisis, and sweeping changes disrupt continuity. Moreover, making sweeping changes sends a debilitating message down the line. It says to every subordinate manager, *you had better not be around when something goes wrong*. And

each one of those managers receives the message as: *don't do anything that might have a risk attached to it*. It also says, *the agency won't stand by you when things get tough*, which is a terrible thing to risk saying to individuals who may be prepared to walk an extra mile for you day after day. The effect on morale can be as devastating as the accident itself.

Administrator Webb, after the Apollo-Saturn 204 fire, resisted that temptation. He made a few management and organizational changes, but they were surgical in nature--made only in very specific instances where a change was clearly indicated. After the *Challenger* accident, virtually every top management position in NASA changed hands within the next 12 months. So complete was the turnover that it was difficult for the line people to grasp--if it could be grasped--the rationale for any particular change.

And then the agency fights on a political front. How an agency fares politically, during a crisis, depends somewhat on how it deals with the media. In the case of the Apollo-Saturn 204 fire, the experimental nature of the Apollo program was generally understood, and the crew that perished was

also understood to have been trained risk-takers. This did not diminish the gravity of their loss, especially to their families, but it colored the way the press treated the episode. With the *Challenger* accident, NASA had advertised that the Shuttle was sufficiently operational to fly ordinary citizens, and then selected a schoolteacher, wife, and mother of young children to be its first citizen passenger. You know the rest: media coverage was merciless and often maudlin.

The political outcome of a crisis of the magnitude of the *Challenger* accident also depends a great deal on who seizes and keeps the political initiative. After the Apollo-Saturn 204 fire, Administrator Webb seized and kept the initiative throughout. But after the *Challenger* accident, because of the instability in NASA's own top management, the agency was unable to seize the initiative vis-à-vis the White House and the Congress.

How well a government agency survives a crisis politically ultimately depends upon the degree to which there is a consensus about the value of its basic mission. After the Apollo-Saturn 204 fire, the importance, or legitimacy, of the Apollo program itself was never seriously challenged.

But the Shuttle program, which has had a number of vocal detractors since its inception, especially within the scientific community, came under heavy fire after the *Challenger* accident. The program has survived, but not with the consensus that supported the Apollo program.

The third phase in the process set in motion by a major accident is **recovery**. Recovery for an R&D agency after a major accident begins with its first major technical success, its first significant demonstration that its technical ability is intact. Ten months after the Apollo-Saturn 204 fire, NASA successfully flew a three-stage Apollo spacecraft on the Saturn V that would take us to the Moon a little under 2 years later. But after the *Challenger* accident, it took NASA 32 months to return to flight, which it did in September 1988. This was a very long time of uncertainty, however justified it may have been by the need to assure that all foreseeable problems with the Shuttle had been resolved.

Recovery has occurred when an organization, like an individual, is once more in command of its destiny. This does not mean that it initiates or

controls every event; what it does mean is that it has a sufficient sense of its own purpose that it can take the initiative, and that it, and not someone else, defines what "success" is. For NASA, as for any other executive agency, recovery has taken place when the White House and the agency's management share a clear sense of the national, not just agency, purpose that is served by the agency's mission.

NASA had recovered after the Apollo-Saturn 204 fire and achieved its successful Moon landing by the end of July of 1969. After that event, which in the public mind had become the agency's defining purpose, the political consensus behind the agency began to weaken. This, however, was attributable to circumstances other than the Apollo-Saturn 204 fire. After the *Challenger* accident, NASA's recovery was complicated by the entry of additional players--the National Space Council and other Federal agencies--in the space business. The activities of these other players, as well as troubles with the Hubble Space Telescope and the Space Shuttle, have made sustaining that recovery much harder work. The White House supports the agency's mission, and it has fared well so far in its appeal for sufficient

funding to carry on the impressive package of missions it has before it. The budget crisis may put NASA in a temporary set-back, in which it will have lots of company. But we won't be able to attribute that to the *Challenger* accident.

So, what can we learn from the *Challenger* accident? Good government managers can learn that surviving a crisis is as much a matter of careful management as mastering routine. Overcoming crisis requires anticipation and planning, the recognition that crisis and recovery are a process that can and must be managed. That process has several phases--trauma, reaction, and recovery--each of which has its special challenges and its special pitfalls. The worst of these pitfalls is yielding to the temptation to try to restore the world to the way it was before the crisis, a sure recipe for being unprepared for tomorrow. Resisting that temptation is easier if we have confidence in our ability to provide forward-looking, intelligent and conscientious management. We should have that confidence because, in fact, we are all capable of providing that kind of management. Good crisis management is, after all, merely good everyday management under pressure.